AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICES CURRENT.

" *O fortunatos nimium sua si bona norint*
" *Agricolas.*" . . . VIRG.

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AGRICULTURAL.

FOR THE AMERICAN FARMER.

ON HEDGING, No. 5.

By CALEB KIRK, of Delaware.

[Continued from No. 26, p. 204.]

Having preferred plashing to any other mode that I had seen made use of in training a hedge, I began the process when the stalks were about an inch in diameter near the root, and from that to an inch and a half; if well attended to in their previous growth, they will attain that size in six or seven years after they are planted, but if neglected they may require double that period. It may be observed that no advantage is gained by plashing before a good root is formed, for that is the future support and basis of the superstructure by having a good strong root, the cutting and wounding the top or body of the stalk will soon recover any injury received in the necessary work of plashing, which is done by cutting the body of each stalk with a hedge knife or pruning hook, bending the stalk with one hand in the direction it is to be laid, at same time by a stroke with the knife with the other, about four inches from the surface of the ground, if one stroke should not prove sufficient a second or third may be applied, being careful to leave as much of the wood uncut as to afford the sap a chance to flow into the top, and yet to bend easy into an inclined position of about forty-five degrees elevation, from the base or bank on which it stands, one third or one fourth of uncut wood is sufficient to supply sap to the plashing, which must bend easy, otherwise it would incline to rise out of the proper degree of inclination.—Much depends on this circumstance in forming a good and uniform hedge—the plashing should not press one upon another so much as to prevent a free and unobstructed circulation of air and the sun's rays also, as the health and vigour of the plashing is much promoted thereby. If there should be more wood in the hedge by planting too close or from any other cause, it must be cut away, leaving no more, than what is really necessary to form the basis of a good and lasting live fence. (*see the drawing on the next page.*) One of my errors was suffering too much bushwood to be crowded into my first laid hedges, both living and dead—brush-wood, such as was cut away, in some places where too thick, was filled in where too thin; and in order to make a present fence I was induced to suffer it to be done in this way from the recommendation of my hedger, who was from the west of England, and had been in that practice for the immediate making of a fence of such materials as he had to do with. I readily gave his judgment the preference, he having had experience in the business.

But my observations in two or three years more, convinced me of the impropriety of introducing dead wood to fill every vacancy, as well as crowding too much of that which was living. I had much of it to remove in places where a want of health demonstrated the present evil. After this was done the remaining part became more healthy, but still continues thin and never will overcome the injury, there seems to be no inclination to put out shoots from the old wood in those vacancies—which would have put forth shoots when newly laid, if no obstruction had been present.

I find it is best to trim off the branches, especially the large ones, though not very close to the body of the stalk—it shoots young sprouts more abundantly from the plashing, which rise in an upright form; these as well as those from the stumps shooting up through the plashing, interlock the whole together, and holding the plashing in their places as cross bars, form a kind of lattice-work. On the contrary, if the plashing is too crowded, the shoots rising from the stump will evade the thicket, and push out in a lateral direction, endeavouring to gain the benefit of sun and air, and rise on the outside where they are injurious instead of beneficial; by excluding the plashing from the benefit of sun and air, the sap no longer inclines to the plashing, but flows freely into the suckers on the outside.

I have been more particular on this point, having seen errors in others, as well as my own, on that head.

Previous to laying a hedge, a quantity of stakes are to be provided about four feet and a half long, if it stands on a bank, or a little longer if the ground is not elevated, and split as small as they will bear to drive about one foot in the ground; they are to be driven through the plashing occasionally, as the work progresses in a straight line two feet and a half or three feet distant from each other, as in figure A; those stakes are driven through the plashing, so as to keep the laid part directly over the stumps for reasons before given, (the shoots rising immediately through the plash,) those stakes are bound in their place by wattles or poles, prepared of alder or willow, or any thing that will not in future make useful timber, as their use is only temporary, until the hedge becomes set by growth.

This binding has the appearance of a twisted rope; if rightly done it steadies the heads of the stakes, keeps them in a direct line, serves the purpose of holding straggling shoots, that may be directed within it, and confines the top of the hedge, holding it steady for trimming until its own growth gives it stability.

The next year after being laid it should be examined, and any shoot that inclines to leave the right direction should be cut away, unless their is a vacant spot to receive it, then it ought to be introduced into such vacancy by frequently trimming the superfluous branches off, the body becomes more dense and impenetrable.

About five years past I adopted the summer trimming about the middle of 6th month, (June) and found it much easier to accomplish while the shoot was in a tender state, and have regularly done the trimming in that and the following month ever since, finding the labour much easier performed, and no bad effect on the hedges, though warned by some to the contrary, who apprehended bad consequences from cutting at that season.

The present season has been excessively dry and warm, yet I have not discovered the least injury—they have held their foliage as well as usual.

My conclusion has been that by cutting when the sap is in full flow, and taking away the small shoots that were carrying off a considerable portion for their support, that portion must diffuse and spread through the whole body of the hedge, and add strength to every remaining part.

The foregoing remarks will apply to either kind of thorn as it regards the treatment of them, but the Virginia kind has advantages though not so rugged in appearance as the Delaware—they are more uniform in their growth, and give great regularity and uniformity to the hedge.—But what is very important is their inclination to send out an abundance of shoots or suckers, not only when cut from the stump, but for the plash also; the latter is not the case in the Delaware thorn, they seldom afford shoots out of the plash, except where the top is cut off, there suckers will rise.

To obtain a regular distribution of shoots from the plashing, we must be mindful to give every stalk laid a proper degree of slope as before observed, for by this means they are apt to rise on the body of the plash, whereas if too much elevated the sap flows to the head, and produces a cluster at that point; and if laid too much in a horizontal position, the sap not being disposed to follow it, will produce suckers from the stump only, and leaving the plash without sufficient nourishment to become useful, it must consequently decline.

It will be readily understood that the more general we can direct the flow of sap through the whole body of the hedge, the strength and uniformity will be thereby promoted, becoming healthy in all its parts. After that object is obtained, all that is necessary is the keeping it in proper limits by trimming.

The drawing lettered A represents a section of newly plashed hedge, divested of foliage, after having formed the first shoots from the old stalks, making the first effort to fill the vacancies, and seven years old before it was cut. That lettered B represents a section of one that has been laid seven years, and annually trimmed, being in full foliage at the time the

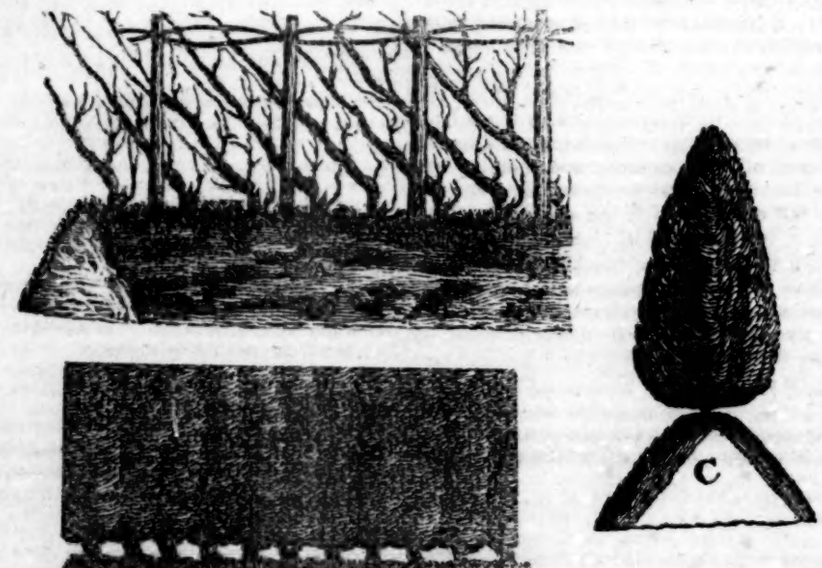
drawing was taken. The former showing the skeleton of a hedge, that may be useful to demonstrate the subject in that stage of its progress to maturity. Figure C represents the end of section B, showing a correct view of the shape, which I preferred for the forming a hedge the most impenetrable at the bottom; those views are elevated on a bank from a foot to eighteen inches high, which was formed from repeated dressing, as they required fresh earth to cover the grass about the roots, which retards their growth in a young state remarkably, if not kept down. This elevation gives the hedge a much more forbidding appearance to ungovernable animals.

The trimming may be done with a hedge knife, about eighteen inches long with a hooked point used with one hand, or with any other sharp light tool that may best suit the operator, making the stroke upwards rather than downwards: the root being secure in the ground, the plants will not give way before the stroke, as they would in making it downwards. The last trimming made on those specimens were done with a common grass scythe, as the mowers were cutting the grass enclosed in the field. I found by applying the scythe to the hedge it was an expeditious mode, though rather unhandy to strike upwards, but a little practice overcame the difficulty.

After viewing those specimens of hedges produced by the foregoing mode of management and in a given term, it will be information to some, I have no doubt, sufficient to determine their choice, whether a dead or a living fence is to be preferred.

I made the choice upon an imaginary view without having advantage of occular demonstration, and without any idea of the comparative expense, or even attempting to make any calculation on the subject, as I had made up my determination preferring a live fence.

There is now some data to form an estimate upon, and the subject is of such a nature as to require a series of years to gain the desired object, yet I have a confidence in believing it can be ascertained with much correctness.



FOR THE AMERICAN FERMER.

PROCEEDINGS
OF THE
Agricultural Society of Maryland.
No. 2.

On the modus operandi of Plaster of Paris.

Cambridge Nov. 20, 1819.

DEAR SIR: In compliance with the request, which you have done me the honour to make of me, I venture to offer to the intelligent and liberal society, over which you preside, an hypothesis upon the *modus operandi* of gypsum, with a confidence, founded more upon that liberality, which they have before evinced, than upon any merit to which it is entitled; in this attempt I am aware of the usual repugnance of practical farmers, to inquiries of this nature, from the prevalence of a sentiment adverse to theory and hypothesis.

That practice and experience teaching useful facts, are essential to the knowledge of agriculture, is admitted; but it is equally obvious, that a systematic arrangement, and accumulation of these facts, whereby a set of elementary principles may be collected and established, will enable us to derive more knowledge from the same experience, for thus we may refer to their proper causes, those phenomena of vegetation daily presented to us, and *a priori*, to anticipate the result of a projet, predicated upon those settled principles, with confidence; these elementary principles combined, conduct us to a system, and this system will involve a theory: and though, from the fallibility of the human mind, we are liable to theorise falsely, by unfair comparisons, and deductions unauthorised: yet we find in this, no sound argument against theory and hypothesis, which, though frequently erroneous, lead us ultimately, by those very errors, which are gradually and necessarily developed, in the course of investigation, to the final truth desired. The annals of every art and science record the truth of this sentiment; the best interests of agriculture require its adoption, and call for a free and liberal discussion of agricultural questions, as well as a communication of facts; which means combined, if we look to other branches of science, have accompanied their progress, *pari passu*, to their present high state of improvement.

In my attempt to inquire into the *rationale* of the action of plaster upon vegetation, I will first, cursorily examine the most current and popular hypothesis, and suggest their defects; and secondly, propose a new one which will explain most of the phenomena which have been noticed, in the use of plaster.

The most popular hypothesis of the *modus operandi* of plaster are,

1st. That its efficacy is derived from the septic powers of the compound (the sulphate of lime.)

2d. That its sulphuric acid produces this effect.

3d. Its power of attracting moisture from the air, is assigned as the cause.

4th. The hypothesis of professor Davy.

The learned president of the Philadelphia Agricultural Society, who has so eminently contributed to the stock of agricultural knowledge in this country, and has received a well-merited applause for his exertions in that department of science, as well as in others, maintains the opinion, that gypsum is septic, and that its fertilizing powers are derived partly from this property, and partly from its sulphuric acid. In the memoirs of that society, vol. 3, p. 299, to prove that it is septic, he applied at the same time, to two heaps of unrotted vegetable substances, different proportions of plaster; that, to which he applied the least, rotted; while the other continued sound, from which he inferred that an *overcharge* was antiseptic, and that a small quantity was septic; but in the same page he says, "no more of the plaster will act than the materials necessary to co-operate with it, require: the balance (i. e. I suppose the *overcharge*) remains in its original state of composition, *inert* and useless"—here is an error in fact, or in reasoning, so obvious as to need no comment.

He (Judge Peters) denies the accuracy of professor Davy's experiments, which go to prove the antiseptic powers of gypsum; but as Dr. Darwin also, has long since proved, that sulphuric acid, in most of its combinations, will not only resist putrefaction, but restore a substance, in which it has actually commenced, we must insist on the professor's correctness, and that Judge Peters has erred in assigning to it septic powers.

Dr. Darwin, in his Phytologia, p. 206, explaining the phenomenon of sulphuric acid combined with clay, counteracting the process of putrefaction, says, "this, it may effect by uniting with the ammonia generated in putrefaction, or by preventing its production." Then, similar affinities will produce the same effect, when the gypsum, or sulphate of lime, is brought into contact with putrescible substances; and though it may be said, that ammonia has less affinity than lime for sulphuric as well as other acids, this is the case only in a state of great purity: for we find in Fourcroy's Chemistry, vol. 2, p. 159, "cretaceous ammoniacal salt, likewise decomposes selenite by double affinity; while the vitriolic acid seizes the volatile alkali, the lime combines with the cretaceous acid," then it is manifest that sulphate of lime must resist putrefaction; because, the cretaceous (carbonic acid generated in this process, is constantly present with the ammonia, to act upon the base of the plaster, and enable the sulphuric acid to seize the ammonia, and thus, by double affinity, produce the same effect, in counteracting putrescence, as the sulphate of clay (by the instances quoted) is known to produce by the single affinity of the acid for ammonia: hence it follows, that the septic property assigned to the compound, as well as to the acid alone, is not possessed by either, and the doctrine founded in the error, is erroneous.

The power of attracting moisture from the atmosphere has been assigned as one of its operative qualities.

On this point, experiments seem to be conclusive, that its adhesive attraction for humidity is very considerable; but that when combined with it, its cohesion is so strong as to make it difficult of separation, and consequently useless in this respect to vegetation.

The opinions of Sir H. Davy are not satisfactory on the subject, as they are on others which he has attempted; he supposes that gypsum, alkalis, and various saline substances, which act in small quantities, and which are thought by many physiologists to be of the same use in the vegetable economy, that condiments or stimulants are, in the animal, are actually a part of the true food of plants, and that they supply that kind of matter to the vegetable fibre, which is analagous to the bony matter in animals: he says that he has found gypsum in its natural state, undecomposed, in all those plants which seem most benefited by it, and that he has uniformly found it in soil, when the application of it had not been advantageous; and had not found it, on the strictest analysis, in those, where the application of it was beneficial.

It is very perceptible, that there must be an error in the professor's facts, or reasoning; because its presence in a soil, where he found its application not advantageous, should have operated as powerfully as its application to soils, in which it was absent; yet we find by daily experience, that some most barren soils become productive by the use of it; but those in which there was already a sufficiency, and on which it will not operate, should be, (according to the professor's theory,) equally productive with those which were improved by its addition; which is not universally true, and therefore, incompetent to solve the phenomenon of its operation.

In hazarding an hypothesis radically variant from the avowed principles of such learned authorities, I am conscious of the risk of incurring the charge of presumption; but equally conscious of the candour and liberality of those whom I address, and of the utility of a free, unrestrained discussion, leading to new experiments, and these, in turn, to new discussion, in the progress and diffusion of science, I venture to offer the following proposition, sct.

That the chief, if not the whole cause of the efficacy of gypsum in promoting vegetation is to be found, "in its tendency to become phosphoric."

The truth of this proposition rests fairly upon the result of three inquiries, sct

"Does gypsum become phosphoric?

"Does phosphorus exist in vegetables?

"Do phosphates promote vegetation?"

If phosphorus is found uniformly in certain vegetables, it may be presumed to be essential to their constitution, and if gypsum become phosphoric, it may readily impart to them this essential matter; and that it does, facts known to us all, authorise me to assert; and to this property, may the chief, if not the whole of its fertilizing virtues be referred.

1st. From repeated experiments of Mr. Du Fay, he asserts that all calcareous stones become phosphoric by calcination, whether they contain a fixed acid, or not, but that those which contain a fixed acid, "as gypsum," become more readily so, and in a greater degree.

Margraaf witnessed similar facts: Dr. Darwin repeats the same assertion and expresses a belief, that the fact may be useful in explaining the operation of gypsum.

Fourcroy says (in his elements of chemistry, vol. 2. p. 137,) that selenite (plaster) placed on a hot iron, becomes phosphoric, a property, which is common to all "calcareous salts." If then calcareous earths containing fixed acids, (i. e. calcareous salts) become readily phosphoric under such circumstances, it is reasonable to deduce by analogy, the same result from its exposure to the atmosphere, and that in point of time this result would happen, earlier or later, as the particles of plaster might be more or less subdivided and thereby exposed to the united action of heat and air, the essential agents of calcination; it would be regulated, too, by many peculiarities of the soil on which it was placed; if dry and warm its action would be hastened; if wet and cold, it would be retarded if not totally prevented: because heat accelerates the process of calcination, on which, as we have seen by authorities quoted, depends its phosphorescence: its action would be promoted highly, by previously spreading on the field even the slightest dressing of hot recent dung; and by spreading the plaster on the surface, rather than by turning it in; for thus, the agents of calcination, heat and air, have freer access to it, and will necessarily produce a more immediate influence: as in the instance of metallic oxids, which are produced in a shorter time, by increasing the heat, but the same result, it is well known, may be produced in the latter, though in a longer time, by exposure to the open air, with its ordinary temperature; to this it may be objected, that the elective affinity of calcareous earths, for carbonic acid, would, by exposure to the air, render them carbonates, and not phosphates; but it is known, that when combined with fixed acids as in plaster, that strong affinity is counteracted, which is proved by Bergman's table of affinities.

From the above considerations it is reasonable to believe that plaster when ground and spread on earth which is dry and warm and containing no substance capable of resisting the process, will readily become phosphoric.

Secondly. That phosphorus does exist in vegetables, we are informed by most of the authorities before quoted, by Margraaf who first detected it: Fourcroy in his elements of chemistry, vol. iv, p. 135, says, on the subject of the residues of burned plants, "an accurate analysis, such as has not hitherto been made, may show that this supposed earthly substance (i. e. the residue, after the saline matter is washed from ashes) is calcareous phosphate" Lord Dundonald in his connexion of agriculture and chemistry, page 25, asserts "that the insoluble part of vegetable ashes is phosphate of lime;" and Dr. Darwin, who says that it has been detected in every kind of vegetable substance, in various proportions, supposes, "that one great source of this elementary substance in vegetables, is calcareous earth;" from such authorities, and others which if necessary, might be adduced, it may be assumed as a truth that phosphorus does exist in vegetables, and if not universally, at least so generally, as to render it absurd to believe, that it is not essential, or useful to them, as an article of their food and sustenance.

That phosphats operate powerfully in promoting vegetation, no doubt can be entertained upon examination of facts. Dr Davy informs us, "that in the neighbourhood of London, bones after having been broken and boiled for grease, are ground and sold to the farmer;" this bone dust is chiefly phosphoric acid and lime, and to the former of these substances must be ascribed the virtues of the manure, because lime, in so small quantities, is notoriously of but little or no value; in all the most powerful manures, which the farmer is acquainted with, phosporus has been found in large proportions; in the recrements of animals; in dung, urine and bone dust, and in the residuum of vegetable ashes; in the two latter, which are both chemically the same, (phosphates of lime,) no substance is found, except phosphorus, as we have just seen, to which their operation notoriously powerful, can possibly be referred, and we cannot avoid attaching to this elementary article, an importance, which it has not heretofore been generally allowed to possess.

From this view, then, it is to be deduced, that all substances which contain phosphorus or which are capable in their nature, of becoming phosphoric, and which are found from experience, to be good manures, derive this quality, from this substance, either in the whole, or in the very considerable degree.

It may be asked then, why does not plaster in all situations, in every earth and atmosphere, impart this nutriment to vegetables? and why does it actually deteriorate some soils, a fact well known to many farmers?

In answer to such queries, I may say that similar phenoma are familiar to every chemist; that decomposition and changes in the nature and qualities of substances may be promoted or counteracted, by the presence of agents apparently simple and impotent. In some instances, those which counteract or promote the operation of plaster, are known; in others, not yet ascertained.

In ferruginous soils, it is sometimes injurious; a reason may be offered, sct. the oxid of iron is not offensive to vegetation; the salts of iron are highly pernicious; hence the application of plaster to ferruginous soils may deteriorate the soil, by converting the oxid into a salt or sulphate of iron; which might occur, if there happened to be present any substance which was capable of decomposing the plaster; as for instance the oxalic acid, which naturally abounds in wood-sorrel, in peat moss; such concurrent causes might render plaster pernicious.

In pure clay, the sulphuric acid of the plaster, forming a sulphate of alumine, though not chemically injurious, yet might operate mechanically, to the injury of vegetables, by rendering the earth hard and impervious to their tender fibres; this might happen, were there present any solvent of plaster. It is said, that the presence of sea or salt air destroys its operation, which it is alleged happens by a double affinity; sct. that the sulphuric acid of the plaster seizes the base of the salt, (soda) and the muriatic acid of the salt attaches to the lime; but I deny that this decomposition, were it to happen, could destroy its efficacy, because, as I have proved, all calcareous earths, combined with fixed acids, become phosphoric; and for reasons given, the new compound must promote vegetation; and in confirmation of this fact, professor Davy names the county of Kent in England, as the place, where the plaster has most fully succeeded; and the greatest effect that I have ever witnessed, was immediately on the banks of the Chesapeake bay; hence the idea of salt air destroying its fertilizing powers, is totally fallacious, because it is not universally true; and the same cause must universally produce the same effect.

In lands which are wet, and consequently cold, it should not operate, because, as we have seen, heat is one of the agents by which it is rendered phosphoric, on which its efficacy depends.

In confirmation, and perfect conformity with my hypothesis, it is a fact stated by the highly respectable and observant gentlemen, of whom I have spoken, Judge Peters, in vol, 1st, p. 179, of the memoirs before quoted:—he says "I met with an instance to show that gypsum lying on the earth for years, will again operate with such re-application of substances," (meaning a slight dressing of hot manure.) It will easily be seen that upon the principles which I contend for the plaster might act for a time, and its action be then suspended from the want of sufficient heat to favour phosphorescence; and that by the addition of a small quantity of hot manure, a renewed action perhaps stronger than the first might ensue.

In 2d vol. p. 209, of the same work, Judge Peters quotes a memoir, by a Mr. Berard, and seems inclined to adopt his opinion upon this subject, sct. "That sulphur affords the vegetative efficacy of plaster; acting as a stimulant to vegetation;" and remarks "why it acts on some plants, and not on others, is as mysterious and inexplicable as its mode of acting on those, whereon it produces invariable and wonderful effects." Truly inexplicable it is, upon the notion of the sulphur of M. Berard; and equally so, upon the principle of its septic quality, for in either case, it should be equally beneficial to the whole vegetable kingdom; whereas, upon the doctrine I contend for the fact admits of easy solution, sct. phosphorus is found to exist more abundantly in some vegetables than in others; and therefore some are benefited by the application of those substances, which contain it, more than others; and probably, when we shall have acquired more experience and more facts, relative to this subject, it will be settled, that a plant will be benefited by plaster, nearly in the ratio of the phosphorus it is constitutionally disposed to secrete and contain.

We may not yet be able at all times, to discern the

cause of the impotency of this calcareous salt in some soils; and of its potency in others of apparent similarity, yet it will be seen that most of the phenomena if not all admit of a solution, upon the hypothesis herein advanced.

Finally then, upon a review, we discover that plaster does become phosphoric; that phosphorus does exist in vegetables, and that the most powerful manures contain phosphorous, nearly in the ratio of their power; and that those most pre-eminent, and acting in quantities so small as to be almost miraculous, contain upon analysis, nothing except phosphorous which can possibly operate at all, (for it is undoubted, that so small a proportion of lime as is applied in bone dust, &c. can produce no visible effect) and the liberal and candid investigator will assent to my proposition and ackowledge the potent agency of the element "phosphorous" in promoting vegetation, and we shall probably in process of time, when we become more intimately acquainted with its properties than at present, assign to it an elevated rank among the pabula of vegetables.

I have the honour to be sir,
Yours respectfully,
JOSEPH E. MUSE.

To the president of the Agricultural
Society at Annapolis.

NURSERY, FOR JANUARY.

From the American practical Gardener.

General Observations.

The cultivation of timber, or trees for building falls peculiarly under this division. The propagation of fruit trees and ornamental shrubs is likewise comprehended in it; while the orchard, fruit garden, and shrubbery exhibit the course of culture, for keeping the plants introduced into each, healthy and fertile.

Trees afford shade and shelter to particular walks and districts; some species will grow in low and marshy places, others on the sides of dry hills, many in waste places, not adapted for the cultivation of other plants or vegetables; at the same time it must be remembered, that most trees discover a preference for some specific kind of soil, in which each species will best succeed; a few show a remarkable repugnance to one peculiar sort of ground, and some trees require a fertile soil in order to flourish.

Although the consumption of timber has not so diminished the number of forest trees in the U. States, as to render the cultivation of it at present so important an object as it is in Europe, yet it requires to be noticed.

The deciduous and evergreens are clear distinctions. Deciduous trees remain leafless from November till April or May.

Evergreen plants change their foliage by degrees, and preserve the old leaves a long while after the formation of the new; the partial severings, and nicely distributed regenerations of foliage, do not take place at any determinate time. The leaves of all evergreen, shrubs and trees have a thin compact skin over their surface, this may be perceived by macerating them in water, in order to separate the pulp from the leaves; the separation cannot be effected until a thin parchment-like case is taken off The continuance of the leaf throughout winter on the tree, and its retention of verdure, is perhaps, owing in a principal degree, to this close covering. The evergreen plants perspire but little, compared with the deciduous, their nutritive juices are endowed with an oily quality, which secures them from being injured by frost, in proportion as it is limited or abundant, so that many evergreens grow in the coldest regions. From the presence of fixed oils, there is good reason for supposing that a certain degree of circulation goes on in their vessels throughout the winter.

The seasons for planting out all kinds of trees are general denominated autumn and spring. In mild winters the former is so prolonged, and the latter begins so early, that the frost of the winter does not always totally suspend, for a great length of time, the plantation of hardy trees and shrubs However between September and April, some months are preferable and safer for removing these than others.

Times for planting deciduous trees,

The eligible time for planting these begins with the fall of the leaf, in each respective species, which although it varies a little, according to the season and constitution of the plant, is always near the middle of October, and thence to the time when the sap begins to rise, and the bud to swell in the spring, which is generally about the middle of March; all kinds of hardy deciduous trees may be then transplanted in open weather.

The end of October is a principal time, the whole of November is very good. for in being transplanted, soon after the leaf decays, the plant has the advantage of the considerable interval, which usually elapses before the frost sets in hard. and if the root puts forth fresh fibres before the winter, the plant will be so well established the following summer, that the drought in the hottest season will not hurt it.

In December, the general transplanting of the deciduous tribe, may be continued in mild weather, but if the more tender and curious exotics are removed, the ground over the roots should be mulched, to keep out the frosts that must be expected; this is done by laying some dryish straw or long litter, to a good thickness on the surface, and as far round as the roots spread, and a little further.

In the course of January, during settled and open weather, any of the hardy deciduous trees and shrubs may be also planted, the more delicate being treated as before recommended, to keep the frost from the roots. If the ground designed to receive the plants, is subject to wet, it is better to defer the removal of them until February. Some fruits, as peaches, nectarines, apricots, plums, and cherries, will generally succeed better, if planted out in the spring, than if planted in autumn.

In February, all deciduous kinds may safely be removed, if the weather be open, most sorts will take root at that season freely.

You may continue to transplant them without risk, until the middle of march, and if any occasion for new plants arise, even when March is drawing to a close, most sorts will yet succeed. But the plantation of deciduous trees should be deliberately and firmly undertaken, and finished about the middle of the month.

Roses planted in march, will flower the same year, but the sooner they are planted, the better they will strike root, and flower the sooner.

Water after transplanting, may be necessary, if the removal be not till thus late; and when curious and tender sorts are inserted in fresh ground, it may likewise be expedient to spread some mulch round the bottom of the stem, to prevent the sun and wind from rendering the earth about the roots too dry.

Having specified the extremes, within which it is advisable to keep, in planting decidous trees, for common purposes, it may be serviceable to state the latitude to which early transplanting, or late transplanting for particular objects, may be best nurtured.

Early transplanting. If new trees in some particular place be wanted, you may remove the sorts, in which the leaves fall the soonest, as early as the first week of October is past; give a good watering, immediately after putting them in the ground, and if the weather be dry, and the exposure warm, repeat the watering twice or three times, and they will strike the same season without requiring more.

Late transplanting. If there be any vacuity in spots set apart for shrubs, the plants may be removed pretty safely, till the second week in April, but they must not only be watered well at planting, but refreshed with water frequently during the dry intervals of summer, to keep them alive. To provide a bloom of roses, as late as July, August and September, the transplanting of an assigned number, is sometimes postponed till April, or the beginning of May; plenty of water must be given them, till they are well rooted.

Times for transplanting Evergreens.

Towards the end of September, you may begin to transplant evergreens with safety, especially if the weather proves moist; if it be dry they must be plentifully watered at planting, and once or twice afterwards. They will probably strike new roots before winter.

Hardy plants may be removed any time in October, the sooner the better, that they may take root before the setting in of frost. Choose a time when the ground is in a moist state.

Throughout November planting may be continued, during open weather; by the latter end of which month, it is desirable that the autumn planting of evergreens should be finished.

When there is a necessity for removing ornamental shrubs in December it will be advisable to mulch round the bottom of the stem, as soon as they are planted The objections to the transplanting evergreens in December, or the latter end of November, however mild at the time, arises from the daily probability of sharp frost coming just afterwards, for the evergreens being in a state of growth in the herb, are liable to be injured in the young shoots and leaves if severe weather occurs soon after they are removed; and in this respect they are less hardy than the deciduous tribe.

Towards the end of January, hardy evergreens may be removed if frosts do not forbid, but no general transplanting of them should be undertaken, till February or March. Frequently when the weather is mild and open in January, the ground is too wet.

If February prove settled and mild, there will be no risk in transplanting; the latter part of the month is generally the best time for removing evergreens.

When it is open weather in March, they will take root most freely in fresh earth; if it be a dry time, give water and lay moist mulch round the stem, to prevent the effects of the sun and wind drying the earth excessively.

Evergreens may be very successfully removed, till the middle of April, at which period the general transplanting should be completed; guard the earth over the roots, from the drying effects of the sun, &c as before directed.

The proper times for transplanting box and other evergreen edgings, are the same as for the larger plants,

Some few kinds of evergreens, the arbutus for example, the rhododendron, and the cypress may be transplanted even in May, but they will be lost, if not well watered.

Removal of plants.

The least hardy plants, which as curious exotics, are often of the most valuable kinds, should be taken up with a ball of earth to their roots. As evergreens are always in a state of growth, it is desirable to have them so dug up on all occasions, that the old mould may adhere about the roots.

Additional remarks,

In the commencement of a subject so important, as directions for the proper management of a nursery, the introducing a general table of deciduous and evergreen trees and plants, appeared the most suitable to convey the necessary instruction, relative to the time and method of planting, and although not only the fall planting, but the winter and spring plantings are introduced into this month, the subject is by this means kept more connected, and can with more facility be recurred to, than to be scattered over different parts of the work. The different species of each genus are not enumerated, as that would require too large a scope, and be more useful to the botanist, than to the practical gardener. However, if a complete list be desired, it may be found in Miller's Gardener's Dictionary.

It is improper to enrich nurseries with dung, unless it is very old, and almost converted to earth, so as to admit it to be entirely incorporated with the soil. If it could be done the ground should be well manured, and a crop of potatoes raised previous to commencing the nursery; when this cannot be easily accomplished, although it is not absolutely necessary that the soil

should be highly manured, yet you should not make choice of a poor soil, but substantial garden ground, or good mellow pasture land, the sward carefully trenched to the bottom.

A small nursery for private use, may be made in any suitable part of the kitchen garden.

Soil and Situation.

It must be evident from the affections and antipathies of plants, in respect to different kinds of earth, that a complete nursery should either naturally comprise, or by art be made to comprise soils of various qualities. The mould, in the chief part of it, should be light and pliable, with a large mixture of sand, a part of it should be a rich fine loam; there should be also, a minor proportion of clayey land, and if possible, some peat earth within the boundaries.

A cold damp bottom, or a soil which lodges any stagnant water, will be very unsuitable, except it be well drained.

The upper soil should be naturally good, or meliorated to the depth of two feet.

As to aspect, the nursery should be open to the east, south, and west, and sheltered on the remaining quarter, so that if a particular exposure is either wanted or to be denied, to any of these plants, it may be obtained by the interposition of screens. If there be slight declivity in the surface, so as not to interfere with the general tillage of the ground, particularly if the inclination be to the south or east, it will have some advantage over a level.

Fencing, preparing, and laying out the Ground.

A fence round the whole nursery is necessary, of the best materials you can procure; a board fence, or hedge and ditch.

When the whole is trenched, as before directed, proceed to divide it by walks, into quarters, and other compartments. A principal walk should lead through the middle from eight to ten feet wide, having a broad border on each side; another walk should be carried all round, leaving an eight or ten feet border next the outward boundary, all the way; then divide the internal part by cross walks, so as to form the whole into four, six, or eight departments, called quarters.

One or more of the divisions must be allotted as a seminary, for the reception of all sorts of seeds, for the reception of seedling plants, to furnish the other parts. Divide this seminary into regular beds of three and a half to four feet wide, with eighteen inch alleys between each bed; in these beds, sow the seeds, &c. of all such trees, shrubs, and herbaceous plants, as are raised from seed, and which consist of the various sorts of smaller seeds, kernels, and stones of fruit, to raise stocks for grafting and budding; seeds of forest trees, ornamental shrubs, &c. and seeds of numerous herbaceous perennials, both of the fibrous and bulbous-rooted tribes. The sowing season is both spring and autumn, according to the nature of the different sorts. When the young tree and shrub plants raised herein are one or two years old, they are to be planted out in nursery rows, into the other principal divisions; but many kinds of herbaceous plants require to be pricked out from the seed-beds, when but from two to three or four months old; bulbous seedlings will not be fit for planting out in less than two or three years.

Another part should be allotted, for stools of various kinds of trees and shrubs, to propagate them by layers, by which numbers of plants of different kinds are propagated. These stools are strong plants of trees and shrubs, planted in rows three or four feet distant every way, and such of them as naturally rise with tall stems, after being planted one year, are to be headed down near the ground, to force out many lower shoots, conveniently situated for laying.

The cuttings, suckers, slips, off-sets, &c. of hardy trees, shrubs and plants may be planted in any convenient part, in shady borders, &c. and for the more tender kinds, some warm sheltered situation should be allotted.

The other principal divisions of the nursery ground, are for the reception of the various seedling plants, from the forementioned seminary, as well as for those which are raised from cuttings, suckers, layers, &c. these to be planted in rows, from one to two or three feet asunder, according to the manner of their growth; allow the tree and shrub kinds three times the distance of herbaceous perennials. Some are to be planted for stocks to graft and bud fruit trees and other choice plants upon. Most forest and other hardy tree kinds, also almost all the sorts of shrubs are trained entirely on their own roots, without budding or grafting. Here they must remain to have several years growth, according as they may require, for the several purposes, they are designed for.

In a complete nursery, it will be proper to allot a dry, warm, sheltered situation in the full sun, on which to make hot-beds of dung or tan, for raising and forwarding many sorts of tender and curious exotics, by seed, cuttings, suckers, slips, &c. and be careful to be furnished with every requisite necessary therefor.

General mode of arranging the Plants.

In the distribution of the various sorts of the plants in the nursery, let each sort be separate: the fruit trees should generally occupy spaces by themselves; the forest trees should be stationed together, all the shrub kind should be ranged in separate compartments—a place should also be appropriated for herbaceous perennials; a warm situation should be assigned for the tender plants, which should be defended with yew, cedar, or some other hedge. In this place those plants may be kept in pots, which require to be preserved from severe frosts, and yet not so tender as to demand the protection of the green-house. The arrangement of all these should be in rows.

Fruit tree stocks, for grafting and budding upon, should be placed in rows three feet distant, and about one foot apart in the row, if for dwarfs; standards should have their rows four feet apart, and eighteen inches or two feet in the rows. Forest trees should be placed in rows, four feet asunder, row from row, and two feet in the rows; the shrubs should likewise have the rows about three feet asunder, and eighteen inches distance in the rows, varying the distance, according to the time, they are to stand in the nursery. Herbaceous plants should be disposed in rows, four feet distance apart, and eighteen inches in the rows.

Planting out the Seedlings.

There are various methods of setting out the nursery plants, after being raised either by seed, layers, suckers, or cuttings; this is performed by pricking out some, especially small seedlings, by the dibble, others are put in by the spade, or hoe.

Planting Herbaceous Fibrous-rooted Plants.

These are for the most part planted out with a dibble, except when the roots are large and spreading, or such as are removed with balls of earth, then they are more commonly planted with a trowel, or small spade.

Planting Bulbous Roots.

Bulbous and tuberous-rooted plants, if set out in the best manner, should be done as follows:—trim off the top of the bed six inches deep, then line out the place for the plants to be set in, the rows six inches apart, cross the first lining at right angles, six inches distance, and in every corner of the bed put in about an inch of clean sand, on this set the roots of hyacinths, or tulips; crocusses do not require to be planted at such a distance. Crown imperials require two feet each way; previous to planting them, lay a shovel full of fresh cow-dung in the place, then put in the root, cover it with another shovel full of the fresh dung, and over this the earth so that the root may be entirely covered with the dung, and its crown be six inches under the surface of the ground.

General Culture of the Plants of this Department.

Those designed as stocks for fruit trees, should have their stems perfectly cleared from lateral shoots, so as to form a clear straight stem, but never shorten the leading shoot, unless it is decayed, or become very crooked, in which case, if it is cut down low in spring, it will shoot out again, then train the main shoot for a stem, with its top entire, until grafted or budded.

After they are budded or grafted, such as are designed for full standards, must be kept to a single clean stem, five or six feet for full standards, by cutting off all lateral shoots, which sprout below; half standards trained with a three or four feet stem, and dwarf standards headed down to one foot from the ground; the graft or bud of these must of course be set in low.

Forest trees should be formed with straight single stems, by trimming off the lateral branches, which will cause the leading top shoot to grow straighter and higher, than it otherwise would; but should it fork, before it has attained a proper height, trim off the weakest and leave the straightest and strongest shoot, to form the stem of the tree.

When the fruit trees are grafted or budded, place sticks to the different species labelled 1, 2, 3, &c. and set them down in the nursery book; paying the same attention to the forest trees, shrubs, and perennials.

Where the plants are in rows, wide enough for the hoe to pass between, which would be the best method, even for the seedlings, hoe the ground well, and frequently, during spring, summer, and autumn, both for the culture of the plants, and to destroy the weeds, also hand weed between the rows. Every fall or spring, the ground, between the rows should be manured with old rotten dung, and dug up, turning in the manure, and weeds, to the bottom.

Southern States.

This month, prune the deciduous shrubs, and trees trimming off all straggling roots of both.

Transplanting of young forest and ornamental trees, in the nursery now may be performed, particularly deciduous trees, &c. of the hardy kinds, if the weather is like to be mild, and hard frosts are not expected follow

Prune all hardy, deciduous shrubs, and in open settled weather, transplant them both in the nursery, and in the shrubbery plantations, provided the soil be dry, otherwise do not plant therein before February.

Plantations of fruit tree stocks, for grafting and budding upon, may be made at any time this month. Many of those raised from seed, last spring, may be now planted in nursery rows, as before directed, and when they have stood there one or two years will be fit for budding and grafting. See Nursery, October, for the method of painting; that of March for grafting, June, July, and August, for budding. This being a suitable time to propagate deciduous trees in the southern states, as well as shrubs by layers, the reader is referred for directions, to Nursery in February, also slips and cuttings.

Prepare some ground, where it is not wet, for the reception of stones and kernels, of hardy fruit, to raise a supply of stocks, for budding and grafting upon; cover the stones an inch and a half deep, and the kernels half an inch, with light earth; keep them clean from weeds, water them in dry weather. Some of them may be transplanted into the nursery rows, in November.

Sow the various kinds of hawthorn, holly, red cedar, juniper, yew, mezereon, sweetbay, English and Portugal laurel berries, horn beam, ash, spindle-tree, bladder nut, and all the other kinds of tree, and shrub seeds, which require a year's care previous to sowing.

For instructions see February and March.

From the Agricultural Museum.

Five Minutes Reflection on Sheep.

[Concluded from our last.]

As to the treatment of the flock in general, the best thing to be offered them is good pasturage, in this climate from about the 20th of April till the 10th of December; a little sooner or later according to the season between which periods they must have food from the racks and troughs. Let the racks be well stored with good hay, clover or timothy in preference, for them to go to at all times. From the troughs give them at the rate of about a gill of Indian corn a day, or its equivalent in oats, pease and the like, through the winter, and in hard weather double the quantity. Irish potatoes chopped, or passed through a cider mill, is an excellent food from the trough, and particularly toward spring for the ewes that have lambs. Turnips, so much recommended in England, I consider no object here; there is difficulty too in preserving them either in the ground or out of it, through our winters; and as to folding,

though I never tried it, I apprehend that it injures sheep more than is compensated by the manure, or the saving of food. Good hay alone, given in plenty, will carry a flock well through the winter. If your stock is small and your pastures or meadows fine and extensive, they may do tolerably well, but there can be no doubt that good feeding in winter is real economy, as much so as putting manure and additional labour on a poor field, is in Agriculture; the produce amply pays the additional trouble and expense; the encrease of quantity and quality of the wool, the number of the lambs raised, and the condition of the whole flock, give a clear profit on the consumption of the food from the rack and the trough; and the great advantage of this system will be found to be, that a Farmer may, on the same ground, with a little additional care and attention support four or five times as many sheep as he did on his old plan; because he then made his calculations only on what his pastures could do for them in winter—and when he found that if he encreased his flock beyond a given number, they became dirty nosed, roach-backed, coughing, losing their wool, he considered himself overstocked, and killed or sold off, and so he was indeed as to the mere scuffling in winter for the little herbage left by the frosts within their reach.

There is no doubt that one hundred acres of good pasture land, will support from the middle of spring till frost, four hundred sheep. If it is profitable then to feed in winter, it is clear, that every Farm may have its stock more than quadrupled, because these one hundred acres under the present practice will not carry through the year more than sixty or seventy sheep, even where by some tender master, a little straw or corn fodder is thrown them to pick under their feet. Salt should be given, where distant from the influence of salt water, in the troughs, or on flat stones ranged for the purpose, twice a week winter and summer. Green food early in spring is very advantageous to the ewes and lambs—Orchard grass and the Peruvian grass, (so called in this part of the country,) afford early pasture, but I think the best way is to sow a piece of Rye, every fall early on purpose—this will occasionally afford a good bite through the winter, and in spring may be fed as late as the 20th of April, and then give, if the season is favourable, a good crop of grain.

To feed the flock securely and conveniently in winter, let there be a roomy pen fixed on a piece of dry ground, with a thatched shed drooped to the north—open on all sides but on the north, long and wide enough to admit the racks and troughs under cover, and to afford room to the flock to lie dry. Beside a gate for the attendant to go through, let there be a pannel open to the height of three feet; this will receive the sheep, and exclude other stock, except hogs, which should not be suffered to run in the sheep pasture—in and out of this pen let them pass at pleasure at all times. After every fall of rain or snow, the interior of the pen should be strewed pretty thickly with clean dry litter, and the space under the sheds be scraped clean and littered afresh every two weeks; the manure so made will be an object. It will be very useful to have within the enclosure a copse of cedars, or pines, to which the sheep can have access during the winter to browse on; the resinous substance contained in the leaves of these trees, are both grateful and salubrious to them—in default of such a copse, if there be any of the trees within convenient distance, the boughs should be brought and thrown into the flock twice a week during winter.

There must be water in the pasture, for although sheep do not require drink in summer when at grass, at this season, and when on dry food, it is absolutely requisite to them.

There is a prevalent opinion, with which I do not hold, that sheep do best at all times without confinement or shelter; this is true as to confinement, except occasionally at yeaning time, but not as to shelter; they want no defence from mere cold; nature has sufficiently covered them against that, not so as to wet and cold combined. The having their fleeces drenched with cold rains, the being for months on the wet and frozen ground, impairs their condition, brings on coughs, and engenders disease.

It is certainly true, however, that the standing and lying on their own filth, will sooner or later infect the flock; but in winter, and with the precautions I have advised, as to cleaning out the sheds frequently and littering the pen, there is little danger. From the middle of April to the middle of December, there is no need for pen or shelter; unless an enclosure to guard against dogs at night, in which case it should be so constructed as to be moved frequently, made six or seven feet high, and the rails or paling placed upright, and on the outer side; indeed at very little expense a moveable shelter and pen for the winter establishment, if danger is apprehended from feeding too long on one spot, might be easily contrived, and made also proof against dogs.

It is of great importance to have the flock entirely gentle. The sheep are more readily fed and inspected, and when it is necessary to handle any of them, as will frequently be the case in a system of good care and good feeding, there is no racing or penning, which beside the delay and trouble of the thing to catch a single sheep, annoys and disturbs the whole flock—and sometimes accidents happen. It is easily effected, by making it the particular business of some one sedate careful person to attend to the flock. Let him by degrees, and particularly in winter, accustom them to feed while he is in the midst of them, and often to take it from his hands—and those among them that are the most shy, let him by slow approaches and kind usage particularly attend to—he will soon have the flock at his call, at any season of the year, and under his hand, he may take hold of any sheep he wants. A good shepherd should know, and he may very soon come to know every individual in his flock, if not a large one, and if very numerous, he should at least know forty or fifty of the most remarkable,

The principal cause of the decay of flocks, is that the old sheep are not removed from it in season; any man will acknowledge the truth of this remark, who will be at the pains of observing. He will find that with the same treatment, the young sheep, (up to six or seven years old,) will be in good case, while those older will be thin; and those yet more advanced miserably poor and apparently diseased. It is a short lived animal, comes soon to maturity and soon declines; and although there are instances that a sheep lives and propagates to twelve or fifteen years, they are rare; the rule is otherwise. The time of shearing is the time of general inspection, and of disposal of the flock. Then let the master's eye be scrutinously placed on every sheep he owns—to choose his lambs to breed from, to mark, to fat, and to dispose of in the course of the fall and winter, not only such wethers as are now of proper age, but above all to examine the coats and mouths of his grown breeders, and to set apart for the butcher all that have broken mouths or indifferent coats. A sheep at birth has his mouth full of lambs teeth, eight on the lower jaw (every body knows that he has none at any age on the upper jaw) at one year he drops two of these in front and acquires in their place two sheep's teeth—the second year he gets two more, one on each side of these last—the third year he has two additional in the same way, and during the fourth year, there come out the two last sheep's teeth, one on each outer side—thus at the commencement of the fifth year, the mouth is full, as it is called—having now eight sheep's teeth on the lower jaw; during the sixth year, the mouth begins to be, what they term, broken; that is, the teeth are wearing away in front; and in the seventh year they have all become smaller, and several are worn near to the gums; the animal is no longer able to pick and manage his food, in pasture, at the rack or trough with the same facility; his constitution begins to fail; the younger and more vigorous competitors cull the best grass from him in the field, and shove him out of the way of good fare in the pen. It is then folly to keep him longer under these disadvantages and the more is the folly, because as a sheep propagates as early as a dunghill fowl, and with the requisite care, such must be the increase of the flock, that to keep them down to a given number, the only question as to the females will be, whether to kill off from the lambs or the ewes—and in what proportionate quantity. The rule is never to shear more than six fleeces from a sheep, unless as to a particular animal which may be preserved on account of uncommon qualities

The best season for shearing, I have found to be the middle of May; there is danger in taking off the coat too early—if a cold rain should fall on sheep soon after they are stript, many will be lost; so sensible are they, at this time, to the changes of the atmosphere; and should a spell of cold rainy weather overtake them within a few days after they are shorn, the only remedy is to house them till it is over.

As any farmer may in a little time renovate his flock, by getting rid of the old subjects and supplying in plenty wholesome provender, so may he in a very few years, greatly change and ameliorate his wool, as well as increase it in quantity, by selecting for his breeders only such as have desirable coats; without having recourse to new breeds. At the shearing season, the fleece is full grown, and all its defects or advantages may be seen; at this time then let the final selection be made among the grown sheep; since, however, promising a lamb may have been, as to size and form, when turned out, its wool can only be judged of when he comes to the first shear. Seek for wool curled in the fibre, set close on the pelt, and free from stitched hairs as they are called—(hairs interspersed throughout the body and principally about the back and rump) and without much breeching, (long straight haired spots on the thighs)—a single ram with these defects will entail mischief on the flock for many years—and every ewe of this description will be removing to a greater distance the period of improvement.

It is an error, but too common, to judge of a sheep from the apparent bulk and form given by a coat of long coarse hairy wool; it is deceptive and imposes on a superficial observer. Let such a sheep be stripped, and then examine his carcase and his fleece, the first will be found to have lost all its supposed beauty and advantage, and on inspecting the fleece, they will not be discovered to have been left there; this will be seen to be too long and too harsh for carding, fit only to fatigue and vex the good housewife and her spinners—and to make, even among coarse fabrics, stiff uncomfortable clothing.

Any person, however, unaccustomed to examine wool, may soon habituate his eye to the relative qualities, so as to be a competent judge of any fleece or detached lock, and the speediest way of effecting this, is by frequently drawing samples from individuals of one's own flock and those of his neighbours and comparing them, taking care to draw them from the same part of the body; because in most sheep there are different qualities of wool on the different parts; half way down the side adjoining the shoulder is the best place to draw from, for quality and uniformity.

I do not think it is desirable to wash the wool, as some practise on the sheep—it is a disagreeable process to the operator and to the sheep, and as I believe endangers their health. I would recommend that they be shorn unwashed. Let the finest woolled sheep be separated by inspection before shearing, let the fleeces of these be made up carefully without breaking; and when the wool is to be washed, let them be opened on a plank floor and stretched out with the skin side next the floor thus the parts of the fleece may be readily distinguished. Take off the breeching or hinder part, the most of the belly, and the tags, throw these among the coarse fleeces, and there will be left the better parts of the best fleeces, and an easy assortment will have been made of the fine from the coarse for family purposes. A tolerable selection cannot be made after all the fleeces have been mixed and broken in the process of washing and drying.

As to myself, I have as yet been fortunate in know-

ing but few diseases to which sheep are subject, and therefore am not acquainted with many remedies. The principal disease from which I have suffered, and from which I did suffer sorely for several years, after I began to raise this stock, my people called the country distemper. I have already described it; dirty noses, coughs, wheezing, roached backs, pinched flanks, loss of wool before shearing time, great mortality in lambs, and frequent deaths among the old sheep so that I had often to buy in to keep my number up, it was thought infectious, and the worst were separated. In some years they all had it, and then I had often thoughts of getting rid of the whole on any terms, and procuring a fresh and more healthy stock; at length it struck me, on observing a flock at a friend's house on an excursion in a neighbouring state, feeding at the troughs and racks in winter, that it was possible such medicine might be of service to my own sheep. I applied it immediately on my return home, and in few weeks was gratified to find that it had relieved about two-thirds of the flock on examining the next spring, those still affected, I found them absolutely without teeth—these things brought me to my reflections—I set seriously about the reform, and by degrees adopted the system I have here recommended, with complete success, as may, I am satisfied, any farmer who will be pleased to try it. A MARYLANDER.

DESULTORY READINGS.

Under this accommodating title the Editor proposes to appropriate to himself, occasionally, a column or two of the Farmer, for the sake of presenting, more especially to the younger class of his readers, such essays and observations from various authors, as may seem calculated to convey both amusement and instruction.

Though these selections will generally be more or less connected with the pursuits and labours of the husbandman; they will also be, sometimes, of a moral and literary cast, according as accident may happen to present the one or the other. We have too often to regret the want of leisure for a more extensive and deliberate course of studies, that would enable us to make this paper more worthy of the generous encouragement it has received, but we must never forget that our first and paramount duties are those due from us as the Postmaster of a populous city.

We here copy, as an example of what we design, the botanical description, with a short account of the history and medical virtues of *Flax*—for although many of us have seen it growing all our lives, we never probably thought of it, in any other light, than as the means of *making linen*. How inglorious to remain thus uninquisitive about, and ignorant of the history, the elements, and some of the most obvious and useful purposes of things which grow up, and perish about us every day. By spreading in their way some striking examples to shew in how many *new* lights, *science* can exhibit those productions of nature, apparently the best known; it may be that we shall foster amongst the sons and daughters of farmers, a thirst for researches in natural history, and a taste for the pursuits of literature in general—it may be, that we shall be able to convince the young man, who reluctantly submits to the calling of the plough, that his occupation, when properly and liberally viewed, is not of that monotonous and ignominious character, which is so often and so undeservedly attributed to it; on the contrary, there is no pursuit in all the circle of human employments, that admits of greater variety and more various entertainment, that is better calculated to exercise, and develope, and strengthen the mental faculties; or that is more likely to beget and cherish all the better feelings of the heart, *than farming*, when the proprietor conducts it like a gentleman and a man of science,—when he unites, as he ought to do, with the labours of the field, the pleasures of the gun, the exercises of the chase, the experiments of the laboratory, and the studies of the closet. How much more honourable would it be for young gentlemen in the country, to invest their losses at the gaming table, in collections of books on Natural History and Philosophy, and, by so doing, provide, at home, that defence against ennui, which they are too apt to look for in taverns and billiard rooms, in the bottle or the dice box?

FLAX.

History.

This valuable annual plant is said to have come originally from those parts of Egypt, which are exposed to the inundations of the Nile. It now grows wild in the fields in the south of England, and is cultivated in large quantities. It flowers in July.

Linseed contains about one-fifth of mucilage, and one-sixth of fixed oil. The mucilage resides entirely in the skin, and is separated by infusion or decoction; the oil is separated by expression. It is one of the cheapest fixed oils; but is generally rancid and nauseous, and unfit for internal use. The cake which remains after the expression of the oil, contains the farinaceous and mucilaginous part of the seed, and is used in fattening cattle under the name of oil-cake.

Medical use.

Linseed is emollient and demulcent, the entire seeds are used in cataplasms, the infusion is much employed as a pectoral drink, and in ardor urinæ nephritic pains, and during the exhibition of corrosive sublimate.

Linseed abounds with a quantity of oil and mucilage, it yields its mucilage to water; and infusions of it sweetened with sugar or honey, or prepared with the addition of some liquorice root, prove good and useful remedies in coughs and rheums; and the oil got by expression may be used as other mild oils.

Bergins recommends this oil as a good remedy in the illiac passion and volvulus, it is much employed in manufactures of different kinds.

PREPARATIONS.

Cure for a recent cough and cold.

Put a large tea-cupful of linseed, with a quarter of a pound of sun raisins, and two ounces of stick liquorice, into two quarts of soft water, and let it simmer over a slow fire till reduced to one quart; add to it a quarter of a pound of pounded sugar-candy, a table spoonful of old rum, and a table spoonful of the best white wine vinegar or lemon juice, the rum and vinegar should be added as the decoction is taken; for, if they are put in at first, the whole soon becomes flat and less efficacious, the dose is half a pint, made warm, on going to bed; and a little may be taken whenever the cough is troublesome, the worst cold is generally cured by this remedy in two or three days; and, if taken in time is considered infallible.

To dress Flax to look like Silk.

Take one part lime and between two or three parts of wood ashes; pour over them a due proportion of water to make a strong lie, after they have stood together all night, which must be poured off when quite clear. Tie handfuls of flax at both ends, to prevent its entangling, but let the middle of each be spread open, and put it in a kettle, on the bottom of which has first been placed a little straw, with a cloth over it, then put another cloth over the flax, and so continue covering each layer of flax with a cloth, till the kettle is nearly full. Pour over the whole the clear lie, and after boiling it for some hours, take it out, and throw it in cold water, this boiling &c. may be repeated, if requisite. The flax must be each time dried, hackled, beaten and rubbed fine; and, at last, dressed through a large comb, and through a very fine one. By this process the flax acquires a bright and soft thread. The tow which is off, when papered up and combed like cotton, is not only used for many of the same purposes, but makes lint for veterinary surgeons, &c.

THE FARMER.

BALTIMORE, FRIDAY, JANUARY 21, 1820.

TO SUBSCRIBERS,

Those who have, and those who have not paid.

When this paper was established, the Editor laid it down as a general rule, to require payment *in advance*. He felt conscious that, from the communications he should receive from men of superior abilities and experience, as well as from other valuable resources, he could give to the cultivators of the soil, a volume that would be more than worth the subscription money. His leisure moments have been devoted with equal zeal and pleasure, to make the Farmer, a useful *National Work*, on the great subject of American Agriculture. The demand for the paper has exceeded his anticipations, and he has every reason to be grateful for the punctuality of his subscribers. In some instances, gentlemen have paid for two years; with friendly assurances of a desire to see such a work in general circulation throughout our country. Some gentlemen, in the midst of numerous occupations of public and private concernment, have even solicited subscription papers, that they might procure additional names, being pleased to say, that in so doing, they considered themselves as promoting the best interests of the country. But ☞ there are still a few who have neglected to pay for their paper; and although few in number, it is necessary to remind them now, in order to know whether their names are to be transferred to the list of subscribers for the *second volume*. Those who have been peremptorily required to pay in advance, have a right to ask how it happens, that some have been allowed to get in arrears—It has so happened, for the most part in this way—Gentlemen, known to feel a kind and friendly interest for the farmer, have requested the editor to send it to certain persons, saying, that they were respectable and wealthy men, punctual in their general dealings, and would undoubtedly pay when called on; we take this opportunity therefore as the first volume is drawing to a close,

to return our sincere thanks to those who have complied with the terms; and especially to Gentlemen who have, in some cases obtained as many as *thirty* subscribers; at the same time to entreat those few who have not paid, to remit *immediately by Mail, at the risk and cost of the Editor.*

In proportion as domestic manufactures revive that much neglected animal the *sheep*, must rise in public estimation;—we have therefore copied *"five minutes reflection"* of some able writer on sheep. We have read the works of Tessier and Daubeaton, and Somerville and Livingston, &c on the same subject; but this writer has, with masterly discrimination, and with happy application to the circumstances of our own country, condensed all that is essential to be considered in the present state of things, on this item of rural economy.

For the American Farmer.

PROCEEDINGS OF THE AGRICULTURAL SOCIETY OF ALBEMARLE.

On Manuring for Turnips.

No. VII.

Sir,—I beg the liberty of communicating to your society, the result of an experiment I made the last year in the culture of Turnips.

A small patch of ground containing one fifth of an acre, which had been a cow-pen the preceding year, I had thoroughly ploughed and harrowed about the middle of July. On or about the 10th of August, immediately after a heavy rain, it was again ploughed and harrowed, and laid off with a hand plough both ways in furrows twelve inches distant, crossing at right angles. At the intersection of the furrows, I had the common summer turnip seed dropped, (three or four seeds in a hill) and covered with the hand, nearly an inch deep. A top dressing of Plaster of Paris was then given it. In forty hours the plants made their appearance. On the 10th of September, when they had from five to seven rough leaves, about six inches long, I had the ground thoroughly hoed—the weeds removed, and the hills thinned—one plant only being left in each. On the first of October they covered the ground, and measured about two and a half feet in length. At this time the roots were not larger than a thimble; but they soon began to grow rapidly, and the outside leaves to fall off. By the last of the month, they had got their full growth. On the 10th of November I measured the product of one square rod, taken indiscriminately near the centre of the ground. It yielded seven and a half bushels of excellent turnips, all nearly of the same size; the smallest weighing about two, and the largest not more than four and a half pounds. No difference was discoverable throughout the patch. Admitting therefore that every part was equal (and I have no hesitation in asserting the fact,) the whole product was two hundred and forty bushels, in the proportion of twelve hundred bushels to the acre—a product considerably greater than I have ever known in this country, and not inferior to what Sir John Sinclair says the best cultivated land in Great Britain ought to yield.

My principal object in making this communication is, to remove the erroneous idea entertained by many intelligent agriculturists, that the soil and climate of Virginia are unfavourable to the growth of turnips? and, at the same time, to make known what I consider the best method of planting and cultivating them.

With regard to the comparative value of turnips for stock and culinary uses, it is unnecessary to express an opinion; but I do not hesitate to say, that farmers in every section of our country who will pay some attention to the cultivation of that vegetable will be richly remunerated.

BENJ. COLMAN.

P. MINOR, Esq.
Secretary of the Agricultural Society of Albemarle.

For the American Farmer.

A NEW ROTATION.

The following rotation is submitted for the consideration of agriculturists. The criticism of experienced and inquiring farmers is respectfully invited.

1820—Autum—Spread and plough in your manure.

1821—Spring and summer—potatoes, turnips, &c.—Autumn gather in and feed it to your stock.

1822—Indian corn—Autumn sow clover.

1823—Clover—Autumn turn in clover and sow wheat, &c.

1824—Wheat—Autumn manure and plough in stubble.

1825—Spring and summer—Potatoes, turnips, &c.—Autumn gather and feed to stock.

Mr. Editor,—One of your subscribers, who holds in high estimation the efforts of others in the cause of agriculture, is desirous to know the result of the soiling experiment of Col. Tilghman of Washington. If he will be particular in his promised account of this experiment, he will much oblige his friend and fellow farmer.

MONOCACY.

January 18th, 1820.

How to make Brown Spruce Beer.

Pour eight gallons of cold water into a barrel, and then after boiling eight gallons more, put that in also; to this add twelve pounds of molasses with about half a pound of the essence of spruce and on its getting a little cooler, half a pint of good ale yest. The whole being well stirred: or rolled in the barrel, must be left with the bung out for two or three days; after which the liquor may be immediately bottled, corked up, and packed in saw dust or sand, when it will be ripe, and fit to drink in a fortnight.

Remember, that it should be drawn off into quart stone bottles and wired.

EXPORTS.

From the United States in the year ending Sept. 30, 1819.

Produce of the Sea,	$2,024,000
Of the Forest,	4,927,000
Of Agriculture,	41,452,000
Manufactures,	2,574,000
Uncertain,	630,000

Of the produce of the Sea—there was of dried fish $1,052,000—pickled 409,000—whale oil and bone 431,000—spermaceti oil and candles 132,000.

Of the Forest—Skins and furs 481,000—Ginseng 30,000—Lumber, staves, spars, shingles, hoops, poles, hewn timber, &c. 2,400,000—oak bark and other dyes 146,000—naval stores 376,000—ashes pot and pearl 1,419,000.

Of Agriculture—Beef, tallow, hides, live cattle 598,000—butter and cheese 297,000—pork, bacon, lard, and live hogs 1,009,000—horses and mules 100,000—Sheep 21,000—wheat, flour, and bread 6,415,000—Indian corn and meal 1,424,000—rye and meal 296,000—rice 2,143,000—oats, pulse, potatoes, &c. 195,000—tobacco 7,687,000—cotton 21,082,000—flaxseed 171,000—hops 23,000—wax 37,000—poultry, maple sugar, &c. 7000.

Manufactures—tallow candles and soap 469,000—boots, shoes and saddlery 122,000—hats 16,000—grain, spirits, beer and starch 95,000—furniture, coaches and other carriages 325,000—cordage 40,000—iron 54,000—snuff, wax candles, tobacco, lead, &c. 503,000—spirits from molasses 153,000—refined sugar 11,000—chocolate 5000—gunpowder 110,000—brass and copper 13,000 medicinal drugs 32,000—uncertain manufactured article 301,000 raw materials 329,000.

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